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fundamental a rôle was assigned, two (the red and the green) did not exist at all so far as known, and one existed only in a wholly erroneous color, and, moreover, in the fovea where vision is most acute, not even the visual yellow, the sole carrier of so large an assumption, has ever, by the most careful methods, been detected; it would seem to be far simpler to suppose that the objective color of the absorbent medium has nothing to do with the case.

The proof which was furnished by König immediately after the Ebbinghaus theory was proposed that the absorption of the visual purple is exactly what is needed to account for that increment in vision which is gradually acquired upon the oncoming of darkness; rendered the theory, of course, far more untenable still, and in fact Professor Ebbinghaus himself seems to be no longer inclined to insist upon it. He says (*Grundzüge der Psychologie*, I., 261, 262): "Ich habe vor einiger Zeit einen Versuch in dieser Hinsicht gemacht und darauf hingewiesen, dass zwischen der Art, wie die Farbenblinden Gelb und Blau im Spectrum verteilt sehen, und der Lichtabsorption des Sehpurpurs und des Sehgelb (nach den Untersuchungen Kühnes) eine auffallende Ähnlichkeit bestehe. Da nun offenbar die Bewusstseinswirkung der optischen Reize durch eine den Eindrücken entsprechende Absorption der verschiedenen Lichtstrahlen vermittelt werden muss, so nahm ich an, dass eben in dem Sehpurpur die Heringsche Blaugelbstanz zu erblicken sei.

"Ich sehe jedoch davon ab, die an diesen Ausgangspunkt angeschlossenen und zum Teil davon ganz unabhängigen Gedanken hier zu wiederholen, weil sich bei genauerer Untersuchung des Sehpurpurs durch A. König meine ihn betreffende Annahme nur teilweise bestätigt fand. Das Sehgelb allerdings zeigte in dem einzigen Falle, in dem es erhalten werden konnte, eine mit der Blauempfindung der Farbenblinden annähernd übereinstimmende Lichtabsorption. Die Lichtabsorption des Sehpurpurs selbst dagegen entsprach vielmehr der Verteilung der Helligkeiten in dem Dunkelspectrum des normalen Auges, d. h. also auch in dem Spectrum der total Farbenblinden."

To refrain from reproducing the theory in

its author's own text-book of psychology is probably to be regarded as tantamount to withdrawing it.

C. L. FRANKLIN.

#### SHORTER ARTICLES.

##### NOVA PERSEI, No. 2.

AN examination of the Draper photographs of the spectra of Nova Persei, No. 2, by Mrs. Fleming, shows that, like other novæ, it has been gradually changing into a gaseous nebula. The resemblance to the nebula N. G. C. 3918 is now so close that in a photograph taken on June 19, 1901, no marked difference was noted, except that the nebular line, 5007, is about eight times as bright as  $H\alpha$  in the nebula, and only equal to it in the nova. The lines 3869, 3970 ( $H\gamma$ ), 4102 ( $H\delta$ ), 4341 ( $H\gamma$ ), 4688, 4862 ( $H\beta$ ), 4950, and 5007, are common to both and, except the last, have nearly the same relative intensities. Four bright lines between  $H\gamma$  and  $H\beta$  appear faintly in the nova and are not present in the nebula, while one, 4364, is seen in the nebula but not in the nova, perhaps owing to the proximity of  $H\gamma$ .

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CAMBRIDGE, MASS., June 25, 1901.

#### LIME AND MAGNESIA IN PLANT PRODUCTION.

SINCE 1899, the writer, with Dr. O. Loew, of the Division of Vegetable Physiology and Pathology of the U. S. Department of Agriculture, has been carrying on a series of experiments on the relation of lime to magnesia in the growth of plants. Some very interesting results have been attained which are to be published in a Bulletin of the Division to be issued at an early date. It may be of interest to here set forth a few of those results.

It is well known that magnesium salts form some of the more noxious alkali soils of the arid regions. In other sections it has been noticed that the soils well fertilized, especially with certain crude potash salts, after a time fail to respond to the fertilizers applied and either become sterile or their productive capacity is greatly reduced. This is apparently due to the accumulation of magnesia in the soil, it being present in some potash salts to a great